THE

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EDITORIAL.

Sir Frank Stockdale's Report.

We publish in this number a slightly augmented summary of the conclusions reached by Sir Frank Stockdale, K.C.M.G., C.B.E., Agricultural Adviser to the Secretary of State for the Colonies, as a result of his visit to study Malayan agriculture.

Sir Frank Stockdale has travelled extensively on similar tours in other parts of the Colonial Empire and his five weeks stay in this country enabled him to give Malaya the benefit of his extensive knowledge of tropical agriculture.

The summary in this number is self explanatory but it may be remarked here that the main theme running through the report itself is that of the general poverty of local soils. Sir Frank Stockdale apparently feels that the chief conclusions arising out of his visit to Malaya are that the future activities of the Department of Agriculture should largely be devoted to the problems of maintenance and improvement of soil fertility; to the establishment of tree or orchard crops as distinct from annuals, and to the development of fruit cultivation in the *kampong*, the latter with the dual purposes of improving rural nutrition and of facilitating rural monetary exchange.

It is hoped in a future number to publish an account of Sir Frank's conclusions as a result of his visit to the Netherlands Indies and to Ceylon.

The Feeding of Pigs.

It has been pointed out previously in this Journal that there are some 700,000 pigs in Malaya and that the annual import of swine to supplement local production is about 150,000. During normal times the value of such imports amounts to about 2 million dollars, and there can be little doubt as to the desirability of making this country more self-supporting in this respect.

An improved local pig population can be secured by better feeding, better breeding, or best by a combination of the two. With regard to breeding it can be and has been demonstrated very successfully that crosses between selected pure-bred boars and the ordinary local Chinese-type sow result in upgraded progeny that are markedly superior to their dams. This improvement is of particular value in that it can be secured at comparatively little cost. An article in this number confirms

this fact and also shows that, under ordinary conditions of market price, balanced rations fed to such upgraded pigs are more profitable than the rations fed on a typical Chinese small holding.

The balanced rations described possess two additional virtues. Firstly, almost all of their constituents are either grown or produced locally, and secondly, the majority of these constituents are of little direct use as human food. The importance of the latter point lies in the fact that in any livestock the conversion of food into meat entails an unavoidable wastage of the total nutrients fed. In times of emergency, such as the present, when the provision of food for the human population requires careful consideration, it is therefore highly problematical if any foodstuff should be fed in appreciable quantities to livestock if it can be utilized directly and hence more efficiently as human food.

The Sixteenth Malayan Exhibition.

The Sixteenth Malayan Exhibition, which was held at Kuala Lumpur on the 5th, 6th and 7th August this year, was opened by His Excellency the High Commissioner, Sir Shenton Thomas, G.C.M.G., O.B.E., and was in many respects more comprehensive than in previous years. The general lay-out and staging of many of the exhibits benefited to a marked extent by the provision of new permanent buildings which have largely been made possible by a handsome financial grant from the Federated Malay States Government.

Consonant with the troubled international situation, the speeches at the opening ceremony of His Excellency the High Commissioner and of Dato F. W. Douglas, the President of the Malayan Agri-Horticultural Association, made a major feature of local padi production in its relationship to the Malayan food supply. An article in this number describing the Exhibition quotes His Excellency's speech in full, and the latter was noteworthy as containing a suggestion that in view of the emergency situation the time had arrived for a consideration of the feasibility of extending padi cultivation in this country to all races of Asiatics domiciled here.

The sectional organization of the Exhibition followed that of recent years. The State village industries stalls undoubtedly constituted the chief attraction, that of Kelantan being particularly noteworthy, and these stalls all gained greatly by being housed in the largest of the new buildings. All sections, however, were very well patronized and it is a fitting tribute to those responsible both for the Exhibition as a whole and for the individual exhibits that the attendance figure was the highest recorded in recent years.

Original Articles.

A FEEDING TRIAL WITH HALF-BRED PIGS IN PENANG

BY

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Introductory.

Recent experiments at the Stock Farm, Central Experiment Station, Serdang, have shown that certain balanced rations, designated as rations A. 1 and A. 2, give satisfactory live-weight gains with Middle White pigs(1), and that pure bred Chinese pigs fed on these rations show a marked increase in their rate of live-weight gain when compared with those fed under Chinese small-holding management in Selangor(2).

An opportunity was presented in October 1938 of comparing the growth of half-bred pigs fed with rations A. 1 and A. 2 with the growth of half-bred pigs fed under Chinese management in Penang.

A Chinese sow mated with a Middle White boar farrowed a litter of 14 half-breds at the Ayer Itam Agricultural Station, Penang, on August 23rd. When weaned at 8 weeks old, two groups of 6 pigs each were matched, the average weight of each group being 14.4 lbs. One group was handed over to a Chinese pig rearer who fed what may be described as an "average ration" used by the Chinese in Penang, while the other group was retained at Ayer Itam and fed on rations A. 1 and A. 2. Both groups of pigs were weighed and sold to the butcher at 7½ months old.

Details of Rations.

Tables showing the quantity of each ingredient in rations A. 1 and A. 2, together with the amount of digestible nutrients each contains, were given in the *Malayan Agricultural Journal* for September 1938(2). The only differences between these rations and those used in the Penang experiment are that good quality once-pressed coconut cake was used instead of twice-pressed cake and groundnut cake was substituted for soya bean cake, which is now unobtainable in Penang.

Table I shows the total rations fed to the six pigs at Ayer Itam Agricultural Station together with the costs.

The total ration fed by the Chinese small-holder to his six pigs is given with costs, in Table II.

This ration is not so primitive as that used by the Selangor Chinese described in the article referred to above(2), and it would appear that the Chinese pig-rearers in Penang normally maintain a higher standard of feeding than those in Selangor.

Table I.

Rations and Costs at Ayer Itam Agricultural Station.

Food	Quantity Fed	Proportion of Total Concentrates	Price of Concentrates per picul	Cost of Concentrates	
				Total	Per Pig
	lbs.	per cent.	$	$	$
1. Broken rice ...	572	23.2	2.43	10.47	1.75
2. Rice polishings ...	433	17.5	2.07	6.75	1.12
3. Coconut cake (once-pressed)	483	19.6	2.72	9.89	1.65
4. Groundnut cake ...	874	35.4	2.79	18.36	3.06
5. *Hampas** and tapioca roots ...	3,333				
6. Guinea grass ...	224				
7. Red palm oil ...	67	2.7	20.00	10.05	1.68
8. Minerals ...	40	1.6	16.00	2.68	.45
Total concentrates (1, 2, 3, 4, 7 & 8).	2,469	100.0		58.20	9.71
Total bulk foods (5 & 6)	3,557				
Total ...	6,026				

* *Hampas,* or tapioca refuse, is the residue remaining after the extraction of starch from the tapioca roots.

Comparison of Rations.

It has been thought desirable to assess only the costs of those ingredients which would actually be bought by a Penang rearer, these ingredients being the concentrates in the ration. The bulky foods are left out of account as they are grown by the small-holder himself. From Tables I and II it will be seen that the total quantity of concentrates fed is approximately the same in each ration. In Table III the proportions and costs of the concentrates fed to the two groups of pigs are compared.

Table II.

Ration and Costs on Chinese Holding.

Food	Quantity Fed	Proportion of Total Concentrates	Price of Concentrates per picul	Cost of Concentrates	
				Total	Per Pig
	lbs.	per cent.	$	$	$
1. Red rice ...	400	17.1	3.00	9.00	1.50
2. Rice polishings ...	520	22.3	2.07	8.10	1.35
3. Coconut cake (twice-pressed)	1,013	43.5	2.10	16.00	2.67
4. Fish (fresh) ...	400	17.1	1.00	3.00	.50
5. Banana stems, *hampas* and vegetable leaves ...	5,130				
Total concentrates (1, 2, 3 & 4)	2,333	100.0		36.10	6.02
Total bulk foods (5)	5,130				
Total ...	7,463				

Table III.

Comparison of Proportions and Costs of Concentrates in Rations.

Details of Concentrates	Proportions of Total Concentrates		Costs per Pig	
	A.1 and A.2	Chinese Holding	A.1 and A.2	Chinese Holding
	per cent.	per cent.	$	$
1. Broken rice (A.1 & A.2) or red rice (C.H.)* ...	23.2	17.1	1.75	1.50
2. Rice polishings ...	17.5	22.3	1.12	1.35
3. Coconut cake (once-pressed, A.1 & A.2, twice-pressed C.H.)	19.6	43.5	1.65	2.67
4. Groundnut cake (A.1 & A.2) or fish (C.H.) ...	35.4	17.1	3.06	.50
5. Red palm oil ...	2.7		1.68	
6. Minerals ...	1.6		.45	
Total ...	100.0	100.0	9.71	6.02

* C.H. refers to the ration fed on the Chinese holding.

It will be seen that the total quantity of rice foods in the two rations is approximately the same. The proportion of rice polishings is slightly lower in the A. 1 and A. 2 rations, and red or cargo rice contains more protein than broken rice. The rice foods in the Chinese ration therefore contain a slightly larger quantity of protein.

The outstanding differences occur in the protein foods. The Chinese ration contains a large quantity of twice-pressed coconut cake and a small quantity of fish, whereas the A. 1 and A. 2 rations with 35 per cent. groundnut cake, have a much higher percentage of protein. The main differences between the rations, therefore, are (a) rations A. 1 and A. 2 contain more valuable protein concentrates, (b) rations A. 1 and A. 2 contain red palm oil and added minerals.

Examination of the costs of the two rations shows that rations A. 1 and A. 2 cost 61 per cent. more than the Chinese ration and that this is mainly due to the high cost of groundnut cake and red palm oil. It should be mentioned here, however, that the cost of red palm oil was high in this experiment as it was bought in small tins from Serdang. A pig keeper in Penang normally using palm oil for his pigs would be able to obtain it in larger quantities for just over half the price. The cost per pig in rations A. 1 and A. 2 would then have been reduced to about $9.

The Results of the Trial.

The individual weights of pigs and live-weight gains are set out in Table IV. It will be seen that in spite of the small number of pigs the difference in live-weight gain is easily significant. Table V shows costs of rations per lb. live-weight gain and profit obtainable at different price levels.

Table IV.

Details of Individual Weights of Pigs and Live-Weight Gains.

Pig	Ayer Itam Agricultural Station				Chinese Holding		
	Date of Weighing				Date of Weighing		
	(Weaning) Oct. 17	Jan. 18	Apr. 6	Live-Weight Gain	(Weaning) Oct. 17	Apr. 6	Live-Weight Gain
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	14.0	82.6	173.3	159.3	12.7	97.3	84.6
2	12.0	76.0	138.6	126.6	13.3	106.6	93.3
3	12.7	77.3	161.3	148.6	12.7	114.6	101.9
4	15.3	80.0	160.0	144.7	14.7	114.6	99.9
5	16.7	75.3	168.0	151.3	17.3	136.0	118.7
6	16.0	74.6	166.6	150.6	16.0	121.3	105.3
Mean	14.4	77.6	161.3	146.9	14.4	115.0	100.6
Mean significant difference between live-weight gains (P = 0.01) = 20.8 lbs.							

Table V.

Results of Trial of Cross-Bred Pigs fed at Ayer Itam Agricultural Station and on a Chinese Holding.

	Ayer Itam Rations A.1 & A.2	Chinese Holding Rations
	lbs.	lbs.
Average weight at 8 weeks ...	1.44	14.4
„ 21 „ ...	77.6	—
„ 32 „ ...	161.3	115.0
Live-weight gained in 24 weeks ...	146.9	100.6
„ „ per day ...	.86	.59
Total weight of concentrates fed per pig	412.0	389.0
	cents	cents
Cost of concentrates per lb. ...	2.36	1.55
Cost of concentrates per lb. live-weight gain ...	6.61	5.98
	$	$
With price at $10 per picul live-weight, excess over cost of food is :— ...	2.37	2.59
At $12 -do- ...	4.79	4.32
At $15 -do- ...	8.42	6.91
At $20 -do- ...	14.46	11.22

Discussion.

The pigs fed on rations A. 1 and A. 2 made much better live-weight gains than the Chinese pigs on the same rations at Serdang(2), thus showing the value of the cross-bred, but they did not make quite such good gains as the Middle Whites at Serdang(1). Comparatively good live-weight gains were made, however, by the cross-bred pigs on the Chinese ration, the actual gain per day being higher than that of the Chinese pigs fed on rations A. 1 and A. 2 at Serdang. This is a further indication of the superiority of the cross-bred over the Chinese pig.

It will be seen from Table V that, whereas at the low prices which obtained in Penang during April 1939 ($10 to $12 per picul) little or no extra profit was made by feeding rations A. 1 and A. 2, at higher or more normal prices these rations, which produce higher live-weight gains and therefore more weight of pig to sell, produce a greater profit than is obtained from the Chinese ration. It must be concluded, therefore, that, provided prices are not at an abnormally low level, the balanced rations are more profitable to use than local rations.

With regard to quality, although the pork from the pigs fed on balanced rations was of a firmer texture, a premium is not obtainable for this in Penang. In Selangor,on the other hand, where the pork eating population is largely composed of mining labourers, a premium for the fatter type of pig produced by the balanced rations can be obtained.

It is worth noting that in the Chinese ration a quantity of fish was fed. This fish cost only $1 per picul and must be regarded as a very cheap source of protein and minerals in the ration. It is thought, therefore, that the effect of the introduction of a proportion of fish into the balanced ration will be a fruitful line of investigation for the future.

Acknowledgments.

Acknowledgment is made to Mr. J. R. P. Soper who commenced the trials and to Mr. Tan Ah King who supervised the work.

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2. Marsh, T. D. and Kanagaratnam N. Feeding Trials with Pure-Bred Chinese Pigs. *Malayan Agricultural Journal*, Vol. XXVI, No. 9, September, 1938, page 361.

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THE SIXTEENTH MALAYAN EXHIBITION

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The Malayan Agri-Horticultural Association is to be congratulated on the success of this year's Malayan Exhibition, which was held as usual in Kuala Lumpur during the August Bank Holidays, the 5th, 6th and 7th August, 1939.

Largely owing to the provision of additional permanent buildings, made possible by a special grant of $10,000 by the Federated Malay States Government, the general lay-out of the Exhibition was considerably improved and the increased crowds of visitors more satisfactorily accommodated. In particular, State village industry stalls benefited by being allocated the largest of the new buildings, and they constituted the principal attraction of the Exhibition.

The Association is fortunate in having this year as their Secretary, Mr. G. Shelton-Palmer, to whom much of the credit for the success of the Exhibition should go.

The long period of drought commenced to break during the Exhibition, but fortunately rains were not severe and did not affect attendances, which were the highest recorded for several years. The official figures show a total attendance of 48,542, of which 36,325 paid for admission and 12,217 were admitted on members' and free passes. In 1938 the total attendance was 46,679, and 35,378 in 1937.

Opening Ceremony.

The Exhibition was opened by His Excellency the Governor and High Commissioner, Sir Shenton Thomas, G.C.M.G., O.B.E., in the presence of a distinguished gathering which included Lady Thomas, His Highness the Sultan of Selangor, His Highness the Sultan of Pahang, His Highness the Raja Muda of Perak, the British Resident, Selangor, the British Resident, Pahang, and the Federal Secretary.

In asking His Excellency to open the Exhibition Dato F. W. Douglas, President of the Association, claimed that the Exhibition provided the only opportunity for a view to be obtained of life in Malaya from the many angles normally not available in everyday life. Discussing the rice crop of Malaya and making a comparison with Java, he pointed out that production of rice had increased by 27 per cent. and the area planted by 12 per cent., but that it could not be considered a money-yielding crop. He suggested that the problem is to ensure that the producer obtains such a price for his padi that he will prefer growing it to other forms of cultivation or employment, and urged the provision of water supply to padi areas at present dependent on the vagaries of the weather.

His Excellency's speech was as follows:—

> " Once again it is my pleasant duty to open the Annual Exhibition of the Malayan Agri-Horticultural Association; once again I have to record that the Exhibition of this year—the sixteenth of its kind—is larger and better in the number and variety of exhibits than it has ever been before. For this encouragement our

thanks are due, first, to the organizers who by their enthusiasm and ability have proved that an exhibition of this sort is well worth while; secondly to the exhibitors who have so readily accepted the opportunity to display what they make and what they sell; and thirdly, to the F.M.S. Government which, like a fairy godmother, has once more yielded to the importunity of your President and has provided funds which have been used to erect a permanent building for the exhibits of arts and crafts from the various States. And, now that I have mentioned your President, I think that a very special word of thanks is due to Mr. F. W. Douglas, who has been President of the Association since it was started in 1923 and to whose never failing interest and help all of us who are here to-day and will be here during the next few days owe so much. He may well be pleased with the fruit of his labours.

One of the most satisfactory features of this Exhibition is the Trade Section, where every inch of space has been taken up. This, to my mind, is practical proof of the value of this Exhibition to the trade and commerce of Malaya. It speaks well, also, for the enterprise of commercial firms, who realize that to sell goods they must advertise them and that it is a wise policy to maintain their activities in lean years so that they may be able to reap the best advantage of the fat years which will surely come.

Once again the Sultan of Selangor has taken up space at his own expense, but this year instead of one stall only, His Highness is represented by two. There you will be able to see, and to buy, products of the villages of the State of Selangor, and in offering to the Sultan my hearty congratulations on the success of last year's venture I add the hope that this year it may be even greater.

Whereas last year five States were represented in the Arts and Crafts Section, this year there are nine, and there is the usual attractive exhibit from the Sultan Idris Training College at Tanjong Malim where we can buy, among other things, our yearly supply of baskets. Added interest is given to the Arts and Crafts Section by the presence of a number of craftsmen. There are weavers in silk from Pekan, Kota Bharu, Klang, and Tanjong Malim: there are weavers in fibre from Negri Sembilan, Malacca, and Perak. There are potters from Kedah, silversmiths from Kedah, Kelantan, and Brunei, ropemakers and top makers from Malacca. It is clear that this Exhibition has taken a strong hold on the imagination of the people.

I wish now to turn for a moment to the subject of food production about which your President has just spoken and which has been engaging the earnest attention of my advisers and myself for many months past. There is no need for me to stress the importance of this matter. The chief article of diet for the mass of the population of Malaya is rice, and the cold fact is that for every ton of rice produced in this country two tons have got to be imported. Much has been done since my predecessor started his campaign for local rice production, and since the formation of the Drainage and Irrigation Department in 1932, irrigation facilities have been improved on 123,000 acres of land, and irrigation has been provided on a further 42,500 acres. This good work continues.

Mr. Douglas has compared us with Java, but there are two good reasons why this comparison should not be pushed to extremes. First, the pressure of population in Java is such that the Javanese must work far harder to secure a living than is necessary for the people of Malaya; and secondly, the Javanese who can derive an income from rubber cultivation are very few. In Malaya, more than 1¼ million acres of rubber are in the hands of small-holders, and our total population is less than 5,000,000 people. In Java the population exceeds 40 million and the small holdings of rubber are only 37,000 acres.

Nevertheless, we are faced with the unpleasant fact that we are dependent on outside sources for two-thirds of an essential article of food, and that in time of emergency these supplies may be wholly or partially cut off or may be procurable only at enormous cost which would inevitably involve increases in taxation. I am told that during or shortly after the Great War rice was $1 a gantang which is equivalent to $15.16 a picul.

A new feature of this Exhibition is a map of Malaya at the far end of the main building. On it you will see the areas now under padi cultivation and the areas that are still available, and suitable, for padi cultivation. There is no doubt at all that the production of padi in Malaya could be vastly increased if only we had the farmers; and the question which we have to face to-day is: "Are we going all out for that increase; or are we going to continue to accept the very real risk of short commons if not actual starvation in time of emergency?"

In times like this, when it is the bounden duty of every country within the Empire to defend itself against whatever may befall, there can be only one answer: The land is here, and the population is here; it remains for proper opportunities to be given to Asiatics other than Malays to take up the cultivation of padi. I am glad to say that the State of Johore has already adopted this policy and I trust that the other States will follow this lead without delay. There is no question of depriving the Malays of the use of any land which they can cultivate: the map will show you that there is ample for them and for others as well. Of the 1¼ million acres of small holdings under rubber, by far the largest proportion is in the hands of Malays; and there is no reason why Malays and other races of Asiatics should not grow padi side by side just as they cultivate rubber. All that I ask, therefore, is that suitable land which is not and cannot be put under cultivation by Malays shall be made available to others. And I say that by accepting this policy the State Governments will make a real and practical contribution to the defence of the Empire.

I know that what I have said will not be popular in some quarters and I realize that it will be criticised. But I say again that we are living in critical times, and it would be wrong of me to gloss over with smooth words the serious nature of the position here in regard to food supplies. I believe that as a general rule people prefer to know exactly how they stand even though they may not like it, and I ask my critics to ponder before they speak or rush into print, and to ask themselves what other course is open. If they can think of a better course, I shall be very ready to consider it; but if they cannot, then I hope that they will be honest with themselves and me, and say so.

Your Highnesses, ladies and gentlemen, I declare this Exhibition to be open, and I offer on your behalf my cordial thanks to all those who have worked so hard to ensure its success."

Competitive Sections.

All-Malayan Padi Competition.

This competition was organized for the sixth consecutive year on a Malayan basis. The final stage—or Central Competition—is held in conjunction with the Malayan Exhibition, and is the culmination of numerous small local Padi Competitions, larger District Agricultural Shows and State Shows. Prize-winning exhibits thus may have competed in three competitions before appearing at Kuala Lumpur

The following table summarizes the intermediate Shows which have been held.

Territory	Local Padi Competitions	District Shows	State Shows
Kedah (northern area) ...	—	1	—
Kelantan ...	—	5	1
Penang ...	—	1	—
Province Wellesley ...	9	3	—
Perak ...	36	9	1
Selangor ...	10	6	—
Pahang ...	57	6	1
Negri Sembilan ...	23	2	—
Malacca ...	15	3	—
Johore ...	—	1	—

The number of exhibits received for the Central Competition from each of these States and Settlements was as follows:— Penang and Province Wellesley 12 (15), Kedah 3 (0), Kelantan 2 (3), Perak 54 (33), Selangor 17 (18), Pahang 12 (13), Negri Sembilan 10 (15), Johore 6 (0), Malacca 14 (12), total 130 (109). The figures in brackets are for 1938.

The general standard of padi was surprisingly low, except for a number of good exhibits of long-grained Siam type chiefly from Malacca and Kuala Selangor. The three exhibits from North Kedah were also of this type, of which two were fairly good but not well enough ripened.

Penang and Province Wellesley sent a miscellaneous collection of medium-grained varieties, all below prize-winning quality, which is unusual.

Perak sent in 54 exhibits, all but two of which were unexpectedly poor in quality, particularly 24 Radin Merah exhibits and 14 Seraup type exhibits.

Selangor had a difficult padi season, with dry weather, in scattered or young padi areas, but the standard of exhibits made a distinct advance on that of other years. It was particularly interesting to see several good long-grained Siam or Mayang Rotan exhibits from the important young Panchang Bedena and Tanjong Karang areas of Kuala Selangor.

Pahang also had a difficult season with drought in October last, and then floods. Of the 12 exhibits sent in, four were short-grained Milek varieties, five were medium-grained Radin Kuning, and three were bold-grained Padi Kampar.

Exhibits from Negri Sembilan were below average quality, and the State Agricultural Officer sent fewer than the maximum on this account. These included fair samples of Serendah Kuning, a popular medium bold-grained variety of padi, and three samples of Seraup, one of which was good. The grains of this exhibit,

however, were not too well filled and it was awarded only a second prize, being the only prize given in the Seraup class.

Johore sent two exhibits of Nachin Puteh and one very good one of Serendah Kuning which won a first prize. Johore had a good season for padi cultivation.

Kelantan sent in only two exhibits, one of which, a long-grained Anak Naga, gained a third prize.

Malacca's exhibits included ten of Siam type, two of Nachin type and one of Serendah Kuning. Of these the Siams were much the best, gaining first, second, and a third prize in this class. The first prize also gained the special gold medal for the best exhibit of the competition. This exhibit was an excellent sample of Siam, very well ripened and with well filled grains. It did not appear to be the Department's selection, Siam 29, as were most of the other Siams. Malacca was also awarded the shield for the superior quality of its exhibits.

A feature of the competition was the general poor quality of exhibits from the north of the country—Kedah, Province Wellesley and Perak—the fault being uneven ripeness, under-ripeness and poorly filled grain.

The season in Kedah has been good with a record harvest of grain; crops in Province Wellesley have been very good, and those in Perak have also been better than last year, yet there is this unexpected default in quality, due presumably to various difficulties of water control at harvest time.

Prize winners are as follows:—

Long Grains—1st prize for Siam from Alor Gajah, Malacca.
—2nd prize for Siam 29 from Paya Rumpat, Malacca.
—3rd prize, three awards for Siam 29 from Alor Gajah, Malacca, Anak Naga from Kota Bahru, Kelantan, and Siam 29 from Tanjong Karang, Kuala Selangor, Selangor.

Seraup type—2nd prize for Seraup from Labu, Negri Sembilan.

Radin types—1st prize for Serendah Kuning from Labis, Segamat, Johore.
—2nd prize for Radin Kuning from Kuala Kangsar, Perak.

Judging this year was comparatively easy on account of the large number of exhibits which were quickly discarded on account of the faults already mentioned, uneven ripeness being the most common.

It is of interest to note the trend of types of padi:— Penang—Mayang Sa-Batil; Province Wellesley—various medium grain types; Perak—Seraups and Radins; Pahang—short and medium grain varieties; Negri Sembilan and Johore—no selected strains, Serendah Kuning notable; Selangor—long grain Siam and large grained Kelantan types; Malacca—Siam.

In spite of the generally poor standard of padi samples exhibited this year, there is no doubt that the percentage of samples containing pure or unmixed grain has greatly increased during the six years. This is the point that has been most emphasized in competitions so far, and it appears to have had some effect.

All-Malayan Small-Holders' Rubber Competition.

This competition is organized on the lines of the padi competition, and entries are confined to sheet rubber produced and smoked on holdings of less than 25 acres. This year a total of 130 entries was received.

The average quality of the rubber was lower than in the past two or three years, but the prize-winning exhibits were of the usual high standard. The chief defect of the poorer entries was dirt. Another serious fault was stickiness, mostly caused by insufficient washing but in a few cases due apparently to the use of sulphuric acid as a coagulant. The need for unremitting care and cleanliness is still evident.

Eight equal prizes were awarded, five going to small-holders in Pahang, one to Brunei, one to Selangor, and one to Negri Sembilan. The prize winners comprised five Malays and three Chinese.

Agricultural Section.

In recent years the policy of the organizers of this Section has been altered; late entries are not accepted and exhibits not considered up to the standard of an exhibition organized on a Malayan basis are rejected. The result has been a diminution in the total number of exhibits displayed, which has permitted more satisfactory display of selected exhibits and increased the importance and value of the Section.

This year the exhibits were generally of a high standard, and few submitted were unsuitable for display. The total number received was 3,371 of which nearly 1,600 were fruits and vegetables. The complete absence of hill vegetables was noticeable.

The quality of the vegetables was remarkable in view of the long preceding period of drought. A record number of exhibits of Chinese green tea was shown, but the classes for black tea were not so well supported as those for green tea. The exhibits of prepared coffee were poor in quantity and quality. Soap made by small producers showed marked advance on previous years. The exhibits of small-holders' copra were remarkably good, showing a great advance on previous years, and were representative of the whole of Malaya with the exception of Johore.

The Section was constantly crowded with visitors who took a keen interest in exhibits, and it would sustain such interest if all classes were clearly labelled with the name of the product.

Horticulture.

This Section benefited from being housed in one of the new permanent buildings, which had been specially designed to accommodate horticultural exhibits. The result was extremely successful and marked a further step in the general development of the Exhibition.

There was a very fine commercial display of flowers from Fraser's Hill, recalling the fact that Malaya imported in 1938 fresh flowers to the value of over $24,000.

Poultry.

This Section gained from being housed in part of one of the new buildings, and a large number of entries was received. Small-holders' exhibits of pure-bred birds were again noteworthy, and, for the first time the special awards, with one exception, were awarded to Malay exhibitors. The gold medal awarded for the best bird in the Show was won by a Malay small-holder.

Quite a brisk business was done in sales of exhibits in spite of the high prices demanded by owners.

Cats and Aquatic Section.

A portion of one of the new buildings was allotted to the Cats Section which this year was held on the first two days instead of on the third day as in previous years There was a satisfactory number of entries and some very fine cats were displayed. The new penning arrangements were a considerable improvement.

An innovation was the aquatic group for exhibits of miniature aquariums which produced a good response and was of considerable interest to sightseers. There was also a miscellaneous group for rabbits, guinea pigs and squirrels which was well supported by exhibitors.

Arts and Crafts.

Village Industries.

There are two distinct groups in the Village Industries Section, the competitive classes and the State stalls. The latter group this year was housed in the largest of the new buildings, which will be its permanent home. The new building permitted a much improved lay-out while also allowing much more space for visitors, and this Section was probably the most popular of the Exhibition.

Nearly the whole of Malaya was represented by State stalls this year: Perak, Selangor, Negri Sembilan and Pahang; Kedah, Kelantan, Trengganu and Brunei. Malacca was the only Settlement to exhibit and there was also the stall of the Sultan Idris Training College, Tanjong Malim, Perak. Selangor was represented by two stalls but these were in the main building at the special request of His Highness the Sultan, and rent was paid for them as in the case of trade stalls.

The Kelantan stall won the Governor's Cup for the third year in succession for the best stall in the Section, and had a particularly wide range of silverware and locally-woven materials on sale and display.

The noticeable feature of this group was the large number of craftsmen actually at work, who were a constant source of interest to sightseers. There were workers from Selangor, Pahang, Kelantan and Trengganu weaving on cottage looms, potters from Perak and Kedah, a silversmith from Kedah, Malay girls from Malacca making mats and bags, and men from Negri Sembilan and Pahang turning wooden tops on primitive, but very efficient, lathes. The Brunei stall, in addition to a display of silver work, had a very fine collection of Brunei gongs for sale which occasioned much interest.

The value of this group can be gauged from the fact that total sales were in the neighbourhood of $7,000 irrespective of orders of which Kelantan's share will keep their workers occupied for three months.

The competitive group of this Section was housed in the main building, but it suffered from the development of the State stall group, and entries received were disappointing both in numbers and quality when compared with previous years. Sales of exhibits, which in 1938 were over $400, totalled only $221.

School Industries.

The competitive Schools Section is divided into four main groups; i. English Schools—Boys; ii. English Schools—Girls; iii. Malay Schools—Boys; iv. Malay Schools—Girls. The standard of exhibits was very high, and only the best exhibits were displayed.

Several schools had their own stalls, and a notable stall was that of the Pensionnat Notre Dame, Cameron Highlands, which displayed work of a very high standard.

This year a separate building was allocated to the Trade Schools, of which there are five: Kuala Lumpur, Singapore, Penang, Johore and Malacca. Exhibits ranged from machinery to furniture and tailoring and were a valuable indication of the work carried out in these schools.

Needlework and Handwork: Preserves and Confectionery.

Both these Sections were well supported and exhibits reached a high standard. The Needlework and Handwork Section is confined to handmade articles. The Preserves and Confectionery Section, which last year was not included in the Exhibition, made a welcome re-appearance. Unfortunately it had to be accommodated in the main building and thus suffered to a certain extent from dust.

Art and Photography.

The total number of exhibits received was 468, thus again creating a record. In 1938 exhibits numbered 439, and in previous years did not reach 300. Owing to this large entry the space allotted to the Section was completely inadequate, but the organizers are to be congratulated on the results achieved with the limited space available.

The outstanding feature of the Section was the surprisingly high standard reached by so many of the exhibitors and this was particularly noticeable in the group for water-colours. Several oils were of outstanding merit, and consideration will have to be given to the provision of classes for amateurs and professionals as is already done in the photography group.

The photography classes did not show the same marked improvement over former years, the professional exhibits, with certain marked exceptions, failing to reach previous standards.

Trade Section.

The Trade Section has not yet regained the size and importance which it reached a few years ago, but this year there was a very satisfactory display, staged as usual in the main building of the Exhibition. It included two Selangor State

stalls organized by the Raja Bendahara of Selangor, and displays by the F.M.S. Railways, and Electrical, and Posts and Telegraphs Departments. The Malay Regiment again had a stand in this Section on which were displayed the new Bren guns and an anti-tank gun.

Departmental Exhibitors.

The Department of Agriculture was responsible for the staging of the All-Malayan Padi Competition, and certain of its officers were the organizers of the Agricultural and Oils and Fats Section. In addition there were on display examples of the food crops recently recommended for cultivation on estates.

The Rubber Research Institute of Malaya again organized the All-Malayan Small-Holders' Rubber Competition, and in addition kept open its laboratories during the period of the Exhibition for inspection by interested visitors. Members of the staff were in attendance for consultation, and demonstrations of budgrafting were given at the Institute for the benefit of small-holders. In addition to the demonstrations, exhibits were displayed showing the complete operation of budgrafting as detailed in a recent publication of the Institute. The demonstrations were well attended and a total of over 400 persons visited the Institute.

The Electrical Department had an attractive stall demonstrating a vertical gravel pump for use in open-cast tin mines.

The F.M.S. Railways displayed machine-shop equipment used at their workshops in addition to providing facilities for dealing with enquiries and the sale of tickets.

The Posts and Telegraphs Department provided a Post Office for the convenience of visitors to the Exhibition, and also staged an extremely interesting display of technical equipment used in connexion with the Department's various services.

The Medical Department has its own permanent building and staged comprehensive instructional exhibits dealing with infant welfare work, anti-mosquito measures and general sanitation.

The Exhibition authorities had prepared, with the co-operation of the Surveys Department, a very large map of Malaya which was displayed in the main building showing padi areas and other areas under agricultural development together with comparative figures of rice production in Malaya and the Netherlands Indies.

Entertainments.

A large and varied programme of entertainments was provided throughout the three days of the Exhibition. Of particular interest was the film "The Five Faces of Malaya" which was shown for the first time in Malaya at the Exhibition. The Wuhan Songsters gave special programmes each night in the Stadium. A top-spinning competition in which 23 teams took part created considerable interest and attracted large crowds daily.

Football matches and the Malayan Cycling Championship were held in the Stadium. Beating of "Retreat" took place each evening, being played in turn by the band and drums of the 2nd (Sel.) Battalion of the F.M.S.V.F., Malay Regi-

ment and F.M.S. Police. The F.M.S. Police Depot staged their popular *Bangsawan,* and a Penang "Boria" was given on two evenings.

A cine-film competition was organized for the second year in succession, and films were displayed for judging in the cinema hall.

Acknowledgments.

Acknowledgment is made to Mr. R. B. Jagoe, Botanist, for the report on the All-Malayan Padi Competition, to the Rubber Research Institute of Malaya for the report of the judges of the All-Malayan Small-Holders' Rubber Competition, and to various Section Secretaries for material incorporated in this report.

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Abstract.

REPORT ON A VISIT TO MALAYA

BY

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Agricultural Adviser to the Secretary of State for the Colonies.

Sir Frank Stockdale visited Malaya in response to a request from the Governor of the Straits Settlements and High Commissioner for the Malay States, who indicated that the Adviser on Agriculture desired to discuss certain matters concerning Malayan agriculture and agricultural policy in the Peninsula generally. Sir Frank spent a total of five weeks in Malaya, during which he visited all the Settlements and States in the Straits Settlements and Federated Malay States respectively, and the Unfederated States of Johore, Kedah, Kelantan and Trengganu. Subsequently he visited the Netherlands Indies and Ceylon.

His report on Malayan agriculture runs to some sixty pages, subdivided into sections of which the following are the more important:—

Political Divisions and Agricultural Industries.
Soil Conservation.
Rubber, Rice, Coconuts, Pineapples.
Tea, Fruits and Vegetables, Cinchona.
Oil Palms, Arecanuts, Derris, Coffee, Cacao, Tobacco.
Agricultural Experiment Stations.
Agricultural Education.
Co-operation.
The Cameron Highlands.
Rejuvenation of Mining Lands.
Summary of Conclusions.

The last section is of greatest interest to the general reader and is printed below in full. In some cases additional information has been added to the summary from the body of the report, in order that certain generalizations which otherwise are intended to be amplified by reference to the report itself may be clarified for the reader who has not access to it.

Summary of Conclusions.

1. Malayan soils are generally of low fertility and it has been fortunate that a tree crop such as rubber has been found suitable for cultivation on the quartzite soils.

2. As far as rubber is concerned, it is concluded that the Rubber Research Institute is doing most valuable work for the industry. Further attention should be given both by the Institute and by rubber-growing interests to the establishment of cover crops as a check to soil erosion. In old rubber this is often difficult but experience elsewhere indicates that it should not be impossible if use is made of

phosphatic manures. Further efforts in this direction are clearly desirable, particularly as the value of phosphatic manuring in rubber in Malaya has been proved. Cover crops are now freely used in young rubber in replanted or newly-planted areas, but there is evidence that growth is somewhat retarded in the early years by reason of root competition. It has yet to be determined whether this effect is continuous and there can be little doubt that for the maintenance of soil fertility and as a check to erosion the use of cover crops is desirable. It is suggested that trials be made with lopping covers grown in young rubber and using these loppings as a mulch around the young rubber plants.

3. The importance of continuing without interruption plant breeding work with rubber is considered to be of importance.

4. Greater use of compost in the nurseries where rubber budwood is being produced should be beneficial.

5. The small-holders' advisory service of the Rubber Research Institute is doing useful work and it is suggested that type plans of smoke-cabinets should be prepared for issue to interested applicants. It is also suggested that middlemen purchasers of wet rubber from small-holders should be encouraged to erect smoke-houses for the production of smoked sheet and consideration given to the possibility of licences to buyers being made conditional, after a due period of time, upon the erection of smoke-houses of approved design.

6. Malaya produces only about 40 per cent. of its rice requirements, and the measures taken in 1932 to improve this position should be continued without abatement. The work of the Drainage and Irrigation Department and of the Department of Agriculture in connexion with the rice industry has been productive of considerable advances. There is a need for a greater production of rice in the State of Johore and in Kelantan progress would be hastened if a Drainage and Irrigation Engineer were appointed to and stationed in that State.

7. The work of the Department of Agriculture for the padi industry is organized on sound lines, and considerable progress has been made, particularly in the selection, testing and distribution of pure-line strains of padi. A review of the manurial trials undertaken at the Padi Stations of the Department of Agriculture is, however, proposed and further work in the study of the agricultural aspects of cultivation is foreshadowed. A greater measure of flexibility in the work of Padi Experiment and Test Stations is also suggested. Reference is made to some of the very useful indigenous implements used in the padi industry of Malaya. Some of these are well worthy of trial in other parts of the Colonial Empire.

8. It is possible that the development of mango-growing in the padi areas in Kedah and Kelantan should be practicable. Such cultivations, by providing a money-crop, would help to improve the economic conditions of the small-holders.

9. Further scientific investigations in connexion with parboiled rice under present-day methods of production in the larger rice mills are suggested, as there have elsewhere been recent changes in the method of parboiling. There is no doubt, also, that Eastern countries can make no greater contribution to the cause

of nutrition than by the encouragement of the production of undermilled rice and that Malaya, by virtue of its Government-controlled rice mills, is well placed to take the lead in the furtherance of this movement.

10. The Department of Agriculture has done very good work by its copra investigations, and the manufacture of copra has greatly improved in recent years. To assist small-holders growing coconuts, it is proposed that the Department of Agriculture should prepare printed type plans of the copra-drying kilns which have been successfully evolved. Middlemen purchasers of coconuts for conversion into copra should be encouraged to erect kilns of the approved types and if necessary a condition to this effect might be introduced into buyers' licences.

11. If plant-breeding work for coconuts is to be continued, a new Experiment Station on land suited to the cultivation of this crop will be required.

12. The tea industry, with assistance from the Department of Agriculture, should endeavour to make in Malaya green tea, in order that imports of this commodity may be replaced by the products of local production.

13. The improvement of the pineapple industry has received attention by the Department of Agriculture and as the result of its efforts considerable improvements have been effected in pineapple factories. Many of them have been rebuilt and in all sanitary conditions have been greatly improved. Grading of produce is now accepted as being desirable and steps are being taken by the industry to improve marketing organization. The fairly widespread occurrence of mealy bug wilt of pineapples is, however, recorded and this has been confirmed by the Entomologist to the Hawaiian Pineapple Experiment Station. Control by spraying should be possible but the trial of predators is suggested. Further attention will have to be given to the maintenance of soil fertility if pineapples are to continue to be grown successfully in mono-culture in Malaya.

14. The problem of maintaining soil fertility on the high lands is the major agricultural problem in Malaya, and its solution will be of the greatest benefit to agriculturists generally. The small-holders require assistance in developing increased productivity of their kampong lands and it is recommended that the work of the district Agricultural Stations should be reconsidered and steps taken to ascertain by experiment the directions in which small-holders' agriculture can be profitably advanced. A number of suggestions are made for consideration, which are largely based on experience gained in other parts of the wet tropics that the cultivation of tree or orchard crops offers greater possibilities of success than the cultivation of annual crops which necessitate that the soil shall be uncovered to the destructive agency of leaching and other losses of fertility during periods of the year at which planting and early growth of annuals take place. Oil palm, coffee, fruits, cacao, and arecanuts are suggested as crops which ought to receive more attention from the small-holder, possibly associated with the introduction of livestock into *kamong* agriculture.

15. Increased attention can undoubtedly be given to the development of fruit cultivation and it is suggested that a new post of Horticulturist or Fruit Specialist should be created in the Department of Agriculture with this object in view.

16. Agricultural Education is briefly reviewed and it is suggested that there is need for the provision of training in padi, coconut and pineapple cultivation in addition to that given in the present courses. Agreement is expressed with the remodelling of the Farm School, Malacca, and it is indicated that the improvement of the agricultural training provided at the Sultan Idris Training School is most desirable.

17. The problem of the rejuvenation of lands after they have been mined is referred to, and suggestions made in respect of planted shrub or forest cover in order to provide a more rapid accession of organic matter than is customary when these lands are left to Nature.

18. Frequent references are made to the necessity for attempts at the introduction of mixed farming into peasant agriculture in order that soil fertility may be maintained. The value of the use of mulches is also referred to and further trials with composts would seem to be indicated. The subject of animal husbandry has not, however, been dealt with as this matter is under separate consideration by the Governments of Malaya and the Secretary of State.

D.

Departmental.

FROM THE DISTRICTS.

Compiled by the Chief Field Officer from Monthly Reports of Agricultural Officers.

August, 1939.

The Weather.

A normal amount of rain fell in Kedah during August, most of it during the first part of the month. Similarly in Penang and Krian precipitation was up to normal and water supplies were adequate.

Throughout the greater part of the country the dry weather prevailing during July continued and very dry conditions were experienced in some parts. In the extreme south-west of the Peninsula ample rain fell.

Dry conditions also prevailed in Pahang but the occurrence of thunder showers prevented serious drought. At Pekan steady and heavy rain fell.

Crop Reports.

Padi.—In Kedah despite the shortage of rain during the second half of the month water supplies were adequate. In other parts of the country the dry weather has largely held up work in the rice fields, except where irrigation supplies were sufficient.

Malacca padi planters have been particularly unfortunate this season. For the past three months rainfall in this Settlement has been very much below normal. Some heavy showers in the first half of the month enabled cultivators to make a start but hot dry weather for the remainder of the month dried out the land again.

In Kelantan the weather has been favourable for the dry rice crop and most of the land under this crop has now been planted and is growing well. Wet padi planting has been delayed as the usual seasonal rains have not yet commenced.

In the Panchang Bedena area cultivation has recommenced. During the off-season many cultivators planted maize, beans and soya bean on their padi land both for their own consumption and for sale. It is estimated that about 500 acres were planted with maize. A further 100 to 150 Banjarese and Javanese settlers, most of whom came from Perak, have arrived in the area during the past 2 months.

Sungei Manik Padi Area. In Stages I and II of this area cultivation is proceeding satisfactorily. In Stage III, which is now in process of settlement, it is estimated that the felling of jungle has been completed over approximately 5/6th of this area. Some of the lots have been burned and cleared and are now fully planted with maize, dry padi and topioca. Other lots are still only partially cleared. It is fortunate for the new colonists that the last few months have been so very dry—most favourable weather for clearing this type of land. Felling of this swamp

jungle is very laborious owing to the mass of aerial roots which are extremely difficult to dispose of. It has been estimated that the cost of clean clearing such land with hired labour would work out at more than $120 per acre.

In Stage IV of this area 483 six-acre lots (2,848 acres) have already been alienated. A further 893 lots are still available. The west and lowest end is being colonized first. The new settlers in this stage have commenced clearing their land. Of the 433 men who are settling in this area, 364 come from the Perak river mukims, chiefly Pasir Panjang Ulu; 20 come from Sungei Manik itself, and 119 come from other localities.

Rubber.—The price of rubber remained at much the same level as during the preceding month, though a small increase occurred in some places. The value of coupons has tended to decrease, while uncouponed rubber has increased in price. The latter was selling at more than $10 per picul in some districts.

The increase in price of uncouponed rubber has resulted in a revival of tapping on small holdings.

In parts of Selangor it is reported that owing to the drought and consequent difficulty in obtaining good clean water, some inferior dirty sheet is being produced.

Pineapples.—All factories after packing the remainder of their quota ceased operation during the month. When Singapore factories ceased working growers on the Island had little fruit left. By the end of August little fruit remained in Johore plantations. A small proportion of this large quantity of surplus fruit was sold for consumption locally. Pineapples were even offered as free gifts to people entering one of the Singapore amusement parks, and one lorry load, in the absence of a better offer, was sold for $3 for cattle food.

Coconuts.—The uncertain international situation had a depressing effect on copra prices. In the Batu Pahat District it is reported that despite the lower price of copra Chinese producers are continuing to pay a high price for nuts, and Malay producers are finding it difficult to compete.

Buffaloes for Brunei.

The Brunei Government are continuing their policy for the introduction of buffaloes into the State. Forty-five more buffaloes were imported during August and were disposed of to padi planters. Arrangements have now been completed for importing a further 25 animals every fortnight.

FERTILIZER PRICES, SEPTEMBER, 1939.

The following are the prices current for the month of September, 1939, of some of the more important fertilizers.

Product.	Analysis				Price per ton $
	Nitrogen (N)	Phosphoric Acid (P_2O_5)		Potash (K_2O)	
		Soluble	Insoluble		
Sulphate of Ammonia ...	20.6	—	—	—	72.75
Calcium Cyanamide ...	20.6	—	—	—	80.00
Muriate of Potash ...	—	—	—	50	112.00
Sulphate of Potash ...	—	—	—	48	112.00
Superphosphate (concentrated) ...	—	39	—	—	105.00
Superphosphate ...	—	16-18	—	—	60.00
Basic Slag ...	—	—	16	—	48.00
Rock Phosphate (Christmas Island) ...	—	11*	38‡	—	33.50
Rock Phosphate (very finely ground Gafsa) ...	—	11*	26 - 28‡	—	40.00
Lime ...	—	—	—	—	20.00

* Citric soluble. ‡ Total

Quotations are *ex* warehouse, Port Swettenham, Klang, Singapore and Penang, with the exception of muriate of potash which is *ex* warehouse, Port Swettenham, Klang and Singapore.

The above quotations for concentrated superphosphate, superphosphate and Christmas Island phosphate are *ex* warehouse Penang, Port Swettenham and Klang. The Singapore quotations for these three fertilizers are $95, $50 and $31.50 per ton respectively.

Statistical.

MARKET PRICES.

August, 1939.

Major Crops.

Rubber.—The market was comparatively steady throughout the month until the close, when, owing to the increasing European tension, prices commenced to rise. No. 1. X. Ribbed Smoked Sheet, loose, opened at 28 9/16 cents per lb. in Singapore, fell to 27¾ cents on the 24th, rose steadily to 29 cents on the 30th, and closed at 29⅛ cents.

The average of daily quotations for the month was 28.51 cents per lb., as compared with 28.27 cents in July. The London average price was 8.57 pence per lb., and New York 16.56 cents gold, as compared with 8.27 pence and 16.44 cents gold in July.

Prices paid for small-holders' rubber at three centres during the month are given in Table 1.

Table I.

Weekly Prices Paid by Local Dealers for Small-Holders' Rubber, August, 1939.

(Dollars per picul of 133 1/3 lbs.)

Grades	Kuala Kangsar, Perak			Kuala Pilah, Negri Sembilan			Batu Pahat, Johore.		
	2	23	30	3	10	17	2	9	23
Smoked sheet ...	35.10	35.00	38.15	35.50	—	35.60	34.90	—	—
Unsmoked Sheet ...	—	—	33.00	34.30	34.00	34.00	34.20	33.60	33.78
Scrap ...	—	—	—	—	—	—	—	—	—

Transport by F.M.S.R. lorry service Kuala Pilah to Seremban 12 cents per picul, to Malacca excluding duty, 25 cents per picul, by rail Seremban to Penang $1.24 per picul, Seremban to Singapore $8.00 per ton.

Transport from Batu Pahat to Singapore by lorry excluding duty, 90 cents per picul.

Transport from Kuala Kangsar to Prai by railway $6.20 per ton.

Transport from Kuala Kangsar to Singapore by railway $10.00 per ton (minimum consignment 5 tons).

At Kuala Pilah the standard deduction for moisture in unsmoked sheet is 5 per cent.

No purchases of rubber at Kuala Kangsar on the 9th and 16th August, at Kuala Pilah on the 24th and 31st August, and at Batu Pahat on the 16th and 30th August.

Palm Oil.—Prices remained at the closing July levels, and August quotations are given in Table II. The averages of the July quotations were:—palm oil £12.7.6, kernels £8.3.1.

Table II.

Prices of Palm Oil and Palm Kernels.

Date 1939.	Palm Oil in Bulk, c.i.f. landed weight Liverpool/ Halifax. per ton	Palm Kernels, c.i.f. landed weight London/ Continent per ton
August 3	£ 12. 5. 0	£ 8. 0. 0
,, 10	12. 5. 0 Liverpool	8. 2. 6 Hamburg
,, 17	12. 5. 0 ,,	8. 2. 6 ,,
Average	£ 12. 5 0	£ 8. 1. 8

Copra.—Prices fell heavily in the second half of the month. The sun-dried grade was quoted in Singapore at $3.60 per picul until the 14th August when it commenced to fall, the price weakening steadily to close at $3.20. The Singapore average price for the month was $3.50 per picul as compared with $3.59 in July. The mixed grade averaged $3.15 as against $3.24 in July.

Copra cake was quoted throughout the month at $2 per picul as compared with the July average of $1.76.

Rice.—The Singapore average wholesale prices of rice per picul in July were as follows:—Siam No. 2 Ordinary $3.64, Rangoon No. 1 $3.55, Saigon No. 1 $3.37 as compared with $3.75, $3.40 and $3.35 in June, and with $4.39, $3.92 and $4.02 in July 1938.

The average retail prices in cents per gantang (gallon) of No. 2 Siam rice were:—Singapore 26, Penang 31, Malacca 28, as compared with 26, 32 and 28 in June.

The average declared trade value of imports during July was $3.66 per picul as compared with $3.68 in June and $3.76 in May.

Padi.—The Government Rice Mills, Perak and Pahang, continued to pay $2.20 per picul for padi. Retail prices of padi per 100 gantangs (gallons) ranged from $7 to $14 in several parts of the Peninsula. In Kedah the price was $7.30 to $7.50, in Penang and Province Wellesley $8.80, in Krian $9, in Kelantan $9.20, and in Malacca $8 to $10.

Pineapples.—There was no change in prices, which are controlled by the Central Board of Packers. Prices, per case of 48 cans of 1½ lbs. each, were G.A.Q.: Sliced Flat $3.20, Sliced Tall $3.35, Cubes $3.25; Golden: $3.60, $3.75 and $3.65 respectively.

Fresh fruit prices per 100 were as follows:—Singapore 60 cents to $2.10; Selangor 80 to 90 cents medium, and $1 to $1.10 large; Johore 1st quality, $2, 2nd quality 70 cents, 3rd quality 50 cents.

Beverages.

Tea.—Five consignments of Malayan highland tea, comprising 432 packages, were sold on the London market during August at prices ranging from 1s.2d. to 1s.3d. per lb., the average price being 1s.2.45d. Eight consignments of lowland tea, comprising 454 packages, were sold in London at prices ranging from 10¾d. to 1s.0¾d., the average being 11.91d.

The average London prices per lb. realized for tea from other countries, according to the *Tea Market Reports* for August of the Tea Brokers' Association of London, were as follows:—Ceylon 1s.2.83d., Java 1s.1.47d., Indian Northern 1s.3.94d., Indian Southern 1s.1.07d., Sumatra 10.95d.

The latest Colombo prices available, quoted from *The Ceylon Tea Market Report* of 29th August, 1939, of the Colombo Brokers' Association, are as follows, in rupee cents per lb.:—High Grown Teas 92, Medium Grown Teas 77, Low Grown Teas 68.

Coffee.—Liberian coffee continued to be quoted in Singapore at $15 per picul throughout the month. Excelsa and Robusta were quoted throughout the month at $10 and $6.75 respectively.

The average of highest and lowest quotations in Singapore for Palembang coffee was $11.10 to $12.80 per picul, and for Sourabaya coffee $9 to $10.35.

Spices.

Arecanuts.—The averages of the Singapore Chamber of Commerce quotations per picul were:—Best $5.50, Medium $5.20, Mixed $4.55.

The averages of the highest and lowest quotations per picul in Singapore were as follows:—Splits $4.05 to $5.40, Red Whole $4.30 to $5.55, Sliced $8.70 to $10.65, as compared with $3.37 to $5.50, $3.37 to $5.29, and $7.94 to $10.37 in July.

Pepper.—There was no change in Singapore prices of pepper which were, per picul:—Singapore Black $7.25, Singapore White $11.25, Muntok White $11.50.

Nutmegs.—Prices continued unchanged, both 110's and 80's being quoted at $28 per picul. Penang dried nutmegs were sold at $19 per picul.

Mace.—Siouw remained unchanged, being quoted nominally at $85 per picul. Amboina fill from $53 to $46 per picul, averaging $51.50 for the month as against $55 in July. Locally produced mace, dry, was sold in Penang at $70 per picul.

Cloves.—Nominal quotations in Singapore continued unchanged at $40 per picul for both Zanzibar and Amboina. Penang cloves, dried, sold in Penang at $45 per picul.

Cardamoms.—Green cardamoms were quoted in *The Ceylon Chamber of Commerce Weekly Report* of 28th August, 1939, from Rs. 1.20 to Rs. 1.49 per lb.

Miscellaneous.

Derris.—The Dennis patent has been invalidated by the United States Circuit Court of Appeals and as a result cubé, or timbo root, the most important competitor of derris in the United States, is now free from royalty payments. The saving in royalty is equal to £7 per ton.

During August some transactions with America at remarkably low figures were recorded and average prices for the month fell still further. Roots sold on a basis of ether extract averaged $7.25 to $8.50 per picul, and on rotenone content $16.50 to $17.50. The July average price were $7.50 to $9 and $17.50 to $18.50 respectively.

Gambier.—Prices continued unchanged in Singapore: Block $8 per picul nominal, Cube No. 1 $17.

Sago.—Prices improved again in Singapore, Pearl rising 15 cents per picul, and Flour 30 cents. Pearl averaged $4.09 per picul and Flour, Sarawak Fair, averaged $2.50. The July averages were $4.09 and $2.49 respectively.

Tapioca.—Flake Fair improved in Singapore to average $4.06 per picul. Seed Pearl fell, averaging $4.32, and Medium Pearl fell to $4.60. The July averages were $4, $4.50 and $5 respectively.

Tobacco.—Prices of dried leaf in Johore ranged from $5 to $30 per picul, and for prepared tobacco from $10 to $130. In Malacca the range was $20 to $25. The general range elsewhere was: 1st quality $14 to $30, 2nd quality $8 to $22, 3rd quality $5 to $18. Prices for prepared tobacco in Kelantan were: 1st quality $80 to $160, 2nd quality $60 to $130, 3rd quality $40 to $115.

The above prices are based on London and Singapore daily quotations for rubber, on the Singapore daily prices for copra, on the Singapore Chamber of Commerce Weekly Reports for the month and on other local sources of information. Palm oil reports and certain coffee prices are kindly supplied by Guthrie & Co. Ltd., Kuala Lumpur, the Singapore prices of imported coffee and arecanuts by Lianqui Trading Company of Singapore, and Singapore derris prices by Hooglandt & Co., Singapore.

1 picul = 133 1/3 lbs. The dollar is fixed at two shillings and four pence.

Note.— The Department of Agriculture will be pleased to assist planters in finding a market for agricultural produce. Similar assistance is also offered by the Malayan Information Agency, 57, Trafalgar Square, London, W.C.2.

GENERAL RICE SUMMARY*

July 1939.

Malaya.—Imports of foreign rice during July were 51,898 tons†, and exports 13,918 tons. Net imports were accordingly 37,980 tons, as compared with 50,397 tons in 1938¶.

Of the July imports 45 per cent. were consigned to Singapore, 15 per cent. to Penang, 9 per cent. to Malacca, 22 per cent. to the Federated Malay States, and 9 per cent. to the Unfederated Malay States. The foreign imports by countries of origin were as follows (in tons, percentages in brackets):—Thailand 36,787 (70.9), Burma 11,285 (21.8), French Indo-China 3,078 (5.9), other countries 748 (1.4).

Of the exports during July, 71 per cent. were consigned to the Netherlands Indies and 29 per cent. to other countries. The various kinds of rice exported were as follows (in tons, percentages in brackets):—Siam 11,031 (79.3), Burma 1,953 (14.0), French Indo-China 849 (6.1), parboiled 18 (0.1), Malayan production 67 (0.5).

July net imports by countries of origin were (in tons, percentages in brackets):—Thailand 25,756 (67.8), Burma 9,332 (24.6), French Indo-China 2,229 (5.9), elsewhere 663 (1.7).

India.—Foreign exports during the first half-year were 159,000 tons, as compared with 137,000 in 1938, an increase of 16.1 per cent. Of these exports 3.1 (3.7) per cent. were to the United Kingdom, 1.9 (5.8) per cent. to the Continent of Europe, 32.1 (38.0) per cent. to Ceylon, 3.8 (5.1) per cent. to the Straits Settlements and the Far East, and 59.1 (47.4) per cent. to other countries. The percentages in brackets are for the corresponding period in 1938.

Burma.—Foreign exports from the 1st January to 26th July totalled 2,640,941 tons, as compared with 2,191,180 tons in 1938, an increase of 20.5 per cent. Of these exports 56.9 (42.0) per cent. were to India, 7.8 (9.4) per cent. to the United Kingdom, 7.7 (8.6) per cent. to the Continent of Europe, 8.8 (11.1) per cent. to Ceylon, 8.7 (13.6) per cent. to the Straits Settlements and the Far East, and 10.1 (15.3) per cent. to other countries. The percentages in brackets are for the corresponding period of 1938.

Average July prices of rice in rupees per 100 baskets of 75 lbs. each at Rangoon were:—Big Mills Specials 219, Small Mills Specials 223.

Thailand.—Exports of rice and rice products from Bangkok during January to May were 796,628 tons, as compared with 698,490 tons in 1938.

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* Abridged from the Rice Summary for July, 1939, compiled by the Department of Statistics, Straits Settlements and Federated Malay States.

† Ton = long ton (2,240 lbs.).

¶ It is to be understood throughout the summary that all comparisons and percentage increases or decreases are in relation to the corresponding period of 1938.

Japan.—The latest information available was published in the June Summary.

French Indo-China.—Entries of padi into Cholon during January to July totalled 1,176,082 tons, as compared with 771,255 tons in 1938, an increase of 52.5 per cent. Exports of rice during the same period were 1,104,173 tons, as compared with 796,673 tons in 1938, an increase of 38.6 per cent.

In Saigon white rice No. 1 opened in July at $2.65 per picul, rose to $2.69 in mid-July, and closed at $2.44.

The Netherlands Indies.—The latest information available was published in the March Summary.

Ceylon.—Imports during January to July totalled 355,522 tons, as compared with 327,813 tons in 1938, an increase of 8.5 per cent. Of these imports 14.2 (17.4) per cent. were from British India, 63.1 (71.3) per cent. from Burma, 0.3 (0.3) per cent. from the Straits Settlements, and 22.4 (11.0) per cent. from other countries. The 1938 percentages are in brackets.

Europe and America.—Shipments from the East to Europe from the 1st January to 14th July totalled 940,079 tons, as compared with 845,745 tons in 1938, an increase of 11.2 per cent. Of these shipments 37.5 (43.9) per cent. were from Burma, 46.5 (46.5) per cent. from Saigon, 15.1 (8.1) per cent. from Thailand, and 0.9 (1.5) per cent. from Bengal. The 1938 percentages are in brackets.

Shipments for the Levant from 1st January to 27th June totalled 14,065 tons, as compared with 24,455 tons in 1938, a decrease of 42.5 per cent. Shipments for Cuba, West Indies and America from 1st January to 8th July were 114,194 tons, as compared with 112,141 tons in 1938, an increase of 1.8 per cent.

MALAYAN AGRICULTURAL EXPORTS, JUNE, 1939.

PRODUCT.	Net Exports in Tons				
	Year 1938	Jan./June 1938	Jan./June 1939	June 1938	June 1939
Arecanuts ...	33,769	22,257	19,984	4,514	4,103
Coconuts fresh†‡ ...	116,743†	50,453†	49,175†	14,039†	9,420†
Coconut oil‡ ...	49,140	21,259	28,358	3,674	4,988
Copra‡ ...	68,754	18,442	11,619	3,455	2,004
Copra cake ...	7,112	3,340	3,810	954	758
Gambier, all kinds ...	1,632	734	784	122	23
Palm kernels ...	9,359	4,302	5,172	710	785
Palm oil ...	54,377	25,570	22,149	4,971	4,211
Pineapples, canned ...	73,168	42,698	46,695	9,009	8,207
Rubber¶ ...	360,898¶	203,242¶	153,089¶	37,793¶	22,208¶
Sago,—flour ...	4,537	1,687	4,047	532*	919
,, —pearl ...	4,203	1,939	1,773	240	226
,, —raw ...	5,088*	3,046*	2,305*	279*	364*
Tapioca,—flake ...	981	478	521	95	67
,, —flour ...	3,072*	2,087*	1,561*	447*	210*
,, —pearl ...	17,818	8,345	8,279	1,597	1,318
Derris (tuba root) ...	676	207	646	52	66
‡Copra equivalent ...	150,944	53,996	58,683	9,706	10,297

† hundreds in number. * net imports. ¶ production.

MALAYAN AGRICULTURAL EXPORTS, JULY, 1939.

PRODUCT	Net Exports in Tons				
	Year 1938	Jan./July 1938	Jan./July 1939	July 1938	July 1939
Arecanuts ...	33,769	23,705	21,934	1,446	1,950
Coconuts fresh†‡ ...	116,743†	61,053†	59,714†	10,584†	10,539†
Coconut oil‡ ...	49,140	24,630	32,971	3,372	4,613
Copra‡ ...	68,754	25,445	16,521	7,001	4,902
Copra cake ...	7,112	4,230	4,659	661	849
Gambier, all kinds ...	1,632	870	887	132	103
Palm kernels ...	9,359	4,842	5,772	540	600
Palm oil ...	54,377	29,278	28,415	3,708	5,767
Pineapples, canned ...	73,168	49,689	54,624	6,989	7,929
Rubber¶ ...	360,896¶	231,134¶	189,835¶	27,829¶	36,746¶
Sago,—flour ...	4,537	2,672	3,745	986	302*
,, —pearl ...	4,205	2,318	2,040	380	267
,, —raw ...	5,088*	3,240*	2,713*	193*	408*
Tapioca,—flake ...	981	514	549	36	28
,, —flour ...	3,072*	2,174*	1,574*	87*	13*
,, —pearl ...	17,818	10,009	9,744	1,364	1,465
Derris ...	676	284	658	68	12
‡Copra equivalent ...	150,944	66,689	71,292	12,691	12,609

† hundreds in number. * net imports. ¶ production.

MALAYAN PRODUCTION OF PALM OIL AND KERNELS

(In long tons, as declared by Estates).

Month 1939	Palm Oil			Palm Kernels		
	F.M.S.	U.M.S.	Malaya	F.M.S.	U.M.S.	Malaya
January ...	2,402.5	2,726.3	5,128.8	429.7	502.0	931.7
February ...	2,193.4	1,693.3	3,886.7	372.9	282.0	654.9
March ...	2,453.1	2,324.8	4,777.9	437.9	394.0	831.9
April ...	2,160.5	2,082.2	4,242.7	423.4	346.0	769.4
May ...	2,066.0	1,760.1	3,826.1	403.1	274.1	677.2
June ...	2,204.8	2,030.2	4,235.0	368.9	318.0	686.9
July ...	2,522.8	2,360.9	4,883.7	437.0	353.0	790.0
Total ...	16,003.1	14,977.8	30,980.9	2,872.9	2,469.1	5,342.0
Total January to July, 1938 ...	14,417.1	11,128.1	25,545.2	2,596.0	1,871.0	4,467.0
Total for the year 1938 ...	28,979.0	22,087.7	51,066.7	5,158.9	3,620.0	8,778.9

Stocks on estates as at 31st July, 1939, were: palm oil 7,711 tons, palm kernels 647 tons.

STATE OR TERRITORY	Estimated Acreages of Tappable Rubber (9)+(11)	ACREAGES OF TAPPABLE RUBBER NOT TAPPED				Area of tappable rubber never been tapped (b)		Total area not tapped (3)+(5) (c)		TOTAL AREA TAPPED DURING THE MONTH		Area of tappable rubber rested under rotational systems (c)	
		On estates which have entirely ceased tapping		On estates which have partly ceased tapping (a)									
		Acreage	Percentage of (3) to (2)	Acreage	Percentage of (5) to (2)	Acreage	Percentage of (7) to (2)	Acreage	Percentage of (9) to (2)	Average	Percentage of (11) to (2)	Acreage	Percentage of (13) to (2)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
S. S.—													
Province Wellesley ...	42,993	814	1.9	14,210	33.0	473	1.1	15,024	34.9	27,969	65.1	7,756	18.0
Malacca ..	118,728	5,516	4.6	35,590	30.0	2,110	1.8	41,106	34.6	77,622	65.4	24,267	20.4
Penang ..	2,505	nil	nil	1,126	45.0	35	1.4	1,126	45.0	1,379	55.0	60	2.4
Singapore ..	31,929	5,260	16.5	9,939	31.1	175	0.5	15,199	47.6	16,730	52.4	3,536	11.1
Total S.S. ...	196,155	11,590	5.9	60,865	31.0	2,793	1.4	72,455	36.9	123,700	63.1	35,619	18.2
F. M. S.—													
Perak ...	284,405	13,200	4.6	73,298	25.8	7,650	2.7	86,498	30.4	197,907	69.6	48,924	17.2
Selangor ...	316,646	9,314	2.9	73,685	23.3	6,918	2.2	82,999	26.2	233,647	73.8	52,838	16.7
Negri Sembilan ...	262,354	12,549	4.8	75,687	28.8	12,411	4.7	88,236	33.6	174,118	66.4	39,002	14.9
Pahang ...	85,869	4,384	5.1	26,314	30.6	5,668	6.6	30,698	35.7	55,171	64.3	10,434	12.2
Total F.M.S. ...	949,274	39,447	4.2	248,984	26.2	32,647	3.4	288,431	30.4	660,843	69.6	151,198	15.9
U. M. S.—													
Johore ...	478,621	20,022	4.2	149,082	31.1	36,926	7.7	169,104	35.3	309,517	64.7	60,631	12.7
Kedah ...	198,339	9,719	4.9	29,954	15.1	4,570	2.3	39,673	20.0	158,666	80.0	43,381	21.9
Kelantan ...	31,408	403	1.3	6,976	22.2	2,453	7.8	7,379	23.5	24,029	76.5	5,580	17.8
Trengganu (d) ...	4,817	nil	nil	42	0.9	nil	nil	42	0.9	4,775	99.1	2,301	47.8
Perlis (e) ...	1,459	380	26.0	341	23.4	155	10.6	721	49.4	738	50.6	394	27.0
Brunei ...	5,918	nil	nil	2,109	35.6	313	5.3	2,109	35.6	3,809	64.4	1,331	22.5
Total U.M.S. ...	720,562	30,524	4.2	188,504	26.2	44,417	6.2	219,028	30.4	501,534	69.6	113,618	15.8
Total MALAYA ...	1,865,991	81,561	4.4	498,353	26.7	79,857	4.3	579,914	31.1	1,286,077	68.9	300,435	16.1

Notes.—(*a*) Area out-of-tapping on estates which have partly ceased tapping refers to areas definitely being rested and excludes areas on any tapping round.

(*b*) The acreage shown in column (7) is included in columns (3) and (5).

(*c*) Areas of tappable rubber rested under rotational systems are not considered as out-of-tapping and therefore columns (11) and (12) include columns (13) and (14) respectively.

(*d*) Registered companies only.

(*e*) Figures for the quarter ending 30th June, 1939.

MALAYAN RUBBER STATISTICS Table I.

ACREAGE, STOCKS, PRODUCTION, IMPORTS AND EXPORTS OF RUBBER, INCLUDING LATEX, CONCENTRATED LATEX AND REVERTEX, FOR THE MONTH OF JULY, 1939, IN DRY TONS.

State or Territory	Stocks at beginning of month 1			Production by Estates of 100 acres and over		Production by Estates of less than 100 acres estimated 2		Imports				Exports including re-exports				Stocks at end of month			Consumption 3	
								during the month		January to July 1939		during the month		January to July 1939						
	Ports	Dealers	Estates of 100 acres and over	during the month	Jan. to July 1939	during the month	Jan. to July 1939	Foreign	From Malay States & Labuan	Foreign	From Malay States & Labuan	Foreign	Local	Foreign	Local	Ports	Dealers	Estates of 100 acres and over	during the month	Jan. to July 1939
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
MALAY STATES :—																				
Federated Malay States ...	...	3,722	27,200	10,857	67,159	7,906	28,510	Nil	Nil	Nil	Nil	11,901	7,273	76,544	20,146	...	5,117	25,372	22	121
Johore ...	...	1,482	10,480	4,576	29,773	4,623	18,664	Nil	63	Nil	333	2,914	6,665	17,735	31,573	...	2,168	9,459	...	...
Kedah ...	...	110	5,753	2,848	16,720	1,282	4,911	Nil	Nil	Nil	Nil	1,832	2,351	10,064	11,791	...	281	5,529	...	...
Perlis ...	...	3	30	14	63	36	141	Nil	Nil	Nil	Nil	Nil	38	Nil	202	...	18	27	...	...
Kelantan ...	...	435	781	359	2,132	1,012	3,825	Nil	Nil	Nil	Nil	170	1,217	1,770	4,075	...	520	680	...	...
Trengganu ...	...	Nil	420	151	917	443	1,550	Nil	Nil	Nil	Nil	Nil	651	Nil	2,444	...	30	333	...	...
Brunei ...	...	Nil	80	45	251	72	389	...	...	...	...	...	104	...	647	...	10	83	...	...
Total Malay States	...	5,752	44,744	18,850	117,015	15,374	57,990	Nil	63	Nil	333	16,817	18,299	106,113	70,878	...	8,162	41,483	22	121
S. SETTLEMENTS :—																				
Malacca ...	...	1,124	2,444	974	6,387	643	3,311	Nil		Nil		1,986		14,159		...	1,504	2,261	...	...
Province Wellesley	...	503	994	441	2,467	197	1,036	Nil		Nil		6,914		38,805		...	1,225	991	...	...
Penang ...	800	2,516	12	21	111	97	455	3,358	15,066	17,062	69,318		Nil		Nil	1,428	3,239	19	...	...
Singapore ...	4,740	11,529	249	111	713	23	285	16,614		85,847		20,245		133,973		4,310	18,085	285	25	185
Labuan ...	...	12	Nil	Nil	Nil	15	65	80		376		Nil		Nil		...	18	Nil	...	...
Total Straits Settlements ...	5,540	15,684	3,699	1,547	9,678	975	5,152	20,052	15,066	103,285	69,318	29,145	Nil	186,973	Nil	5,738	24,071	3,556	25	185
Total Malaya ...	5,540	21,436	48,443	20,397	126,693	16,349	63,142	20,052	15,129	103,285	69,651	45,962	18,299	293,050	70,878	5,738	32,233	45,039	47	306

TABLE II
DEALERS' STOCKS, IN DRY TONS 3

Class of Rubber	Federated Malay States	S'pore	Penang	Province We'sly D'dings M'cca.	Johore	Kedah
22	23	24	25	26	27	28
DRY RUBBER	4,429	17,593	3,019	2,399	1,819	165
WET RUBBER	688	492	220	358	367	116
TOTAL ...	5,117	18,085	3,239	2,757	2,186	281

TABLE III
FOREIGN EXPORTS

PORTS	For month	Jan. to July 1939
29	30	31
Singapore ...	30,166	201,714
Penang ...	9,897	61,078
Port Swettenham	5,856	29,585
Malacca ...	43	673
MALAYA ...	45,962	293,050

TABLE IV
DOMESTIC EXPORTS 4

AREA	For month	Jan. to July 1939
32	33	34
Malay States ...	35,054	176,595
Straits Settlements	2,570	14,465
MALAYA ...	37,624	191,060

Notes:—

1. Stocks on estates of less than 100 acres and stocks in transit on rail, road or local steamer are not ascertained.
2. The production of estates of less than 100 acres is estimated from the formula: Production + Imports + Stocks at beginning of month = Exports + Stocks at end of month. + Consumption, *i.e.*, Column [7] = Columns [13] + [14] + [17] + [18] + [19] + [20] − [2] − [3] − [4] − [5] − [9] − [10]. For the Straits Settlements the production of estates of less than 100 acres is represented by sales or exports as shown by cess paid.
3. Dealers' stocks in the Federated Malay States are reduced to dry weights by the following fixed ratios: unsmoked sheet, 15% wet sheet, 25% scrap, lump, etc., 40%; stocks elsewhere are in dry weights as reported by the dealers themselves.
4. Columns (33) and (34) represent exports of rubber subject to regulation which, for Singapore and Penang Islands are represented by sales or exports as shown by cess paid.
5. All statements are brought up to date monthly, and any inaccuracies that may be disclosed are corrected in the totals; the latest publication therefore, is always the most reliable.

METEOROLOGICAL SUMMARY, MALAYA, JULY, 1939.

Locality.	Air Temperature in degrees Fahrenheit							Earth Temperature		Rainfall								Bright Sunshine.		
	Means of			Absolute Extremes						Total.		Most in a day.	Number of days.					Total.	Daily Mean.	Per cent.
	A. Max.	B. Min.	Mean of A and B	Highest Max.	Lowest Min.	Lowest Max.	Highest Min.	At 1 foot	At 4 feet			Amt.	Precipitation .01 in or more	Precipitation, .04 in or more	Thunder-storm	Fog morning obs.	Gale force 8 or more			
	°F	°F	°F	°F	°F	°F	°F	°F	°F	in.	mm.	in.						hrs.	hrs.	
Railway Hill, Kuala Lumpur, Selangor ...	92.3	71.9	82.1	95	68	87	74	84.3	85.0	1.18	30.0	0.41	8	5	3	1	1	251.65	8.12	66
Bukit Jeram, Selangor ...	90.6	72.9	81.7	93	70	86	75	86.8	87.5	2.20	55.9	1.22	5	4	—	—	2	286.10	9.23	75
Sitiawan, Perak ...	91.5	72.2	81.8	94	70	88	74	84.8	85.2	1.67	42.4	0.54	7	6	4	—	—	250.35	8.07	66
Ipoh Aerodrome, Perak ...	92.0	71.5	81.7	96	68	87	74	84.3	84.5	2.31	58.7	0.95	5	4	5	—	—	236.90	7.64	62
Temerloh, Pahang ...	91.4	71.5	81.5	95	69	85	75	85.7	86.4	1.10	27.9	0.37	5	5	2	9	—	243.00	7.84	64
Kuala Lipis, Pahang ...	91.0	70.6	80.8	95	68	85	75	83.8	84.6	3.63	92.2	1.56	5	5	4	29	1	220.40	7.11	58
Kuala Pahang, Pahang ...	88.3	74.8	81.5	91	71	83	79	88.0	87.7	3.07	78.0	0.92	9	7	1	2	2	253.75	8.19	67
Kallang Aerodrome, S'pore ...	86.8	76.6	81.7	89	72	81	82	83.2	84.1	3.76	95.5	0.71	16	15	3	1	2	207.20	6.68	55
Bayan Lepas Aerodrome Penang ...	87.8	73.6	80.7	91	71	82	77	84.5	85.0	8.96	227.6	2.14	15	11	5	—	—	235.95	7.61	62
Malacca Town, Malacca ...	86.4	74.3	80.3	89	70	82	80	85.5	85.7	6.73	170.9	4.14	9	8	3	—	2	257.75	8.31	68
Kluang, Johore ...	89.7	70.9	80.3	93	68	82	73	82.2	82.9	1.50	38.1	0.47	11	8	3	12	—	219.50	7.08	58
Mersing, Johore ...	88.9	72.1	80.5	92	69	82	75	83.4	83.3	5.64	143.3	1.43	10	8	6	—	2	252.10	8.13	67
Alor Star, Kedah ...	88.1	73.8	80.9	90	70	84	76	84.8	85.6	6.13	155.7	1.52	12	10	—	—	1	223.65	7.21	58
Kota Bahru, Kelantan ...	89.8	72.9	81.3	93	69	85	75	85.0	85.2	2.86	72.6	1.18	10	9	2	2	1	234.05	7.55	61
Kuala Trengganu, Trengganu	88.9	73.6	81.3	91	70	84	77	84.7	85.3	1.76	44.7	0.91	8	6	6	7	—	233.95	7.55	61
Labuan ...	88.4	77.6	83.0	91	72	85	81	87.1	87.5	10.43	264.9	3.74	7	6	3	—	—	262.20	8.46	68
HILL STATIONS.																				
Fraser's Hill, Pahang 4268 ft.	75.7	63.2	69.5	79	60	70	65	72.5	72.7	1.05	26.7	0.34	10	6	3	3	1	246.25	7.94	65
Cameron Highlands, Tanah Rata, Pahang 4750 ft. ...	72.8	53.7	63.3	76	45	66	62	69.7	69.6	3.04	77.2	0.83	8	8	2	3	—	193.30	6.23	50
Cameron Highlands, Rhododendron Hill, Pahang 5120 ft. ...	72.5	59.2	65.9	77	58	64	60	*	*	2.78	70.6	0.75	9	8	—	—	5	206.75	6.67	54

* Not recorded.

Compiled from Returns supplied by the Meteorological Branch, Malaya.